

## CLAIMS

I claim:

1 1. An electronic device, comprising:  
2 a first substrate;  
3 a second substrate; and  
4 a flexible connector attached between the first and second  
5 substrates by a plurality of contacts on a first and a second  
6 surface of the connector.

1 2. The electronic device of claim 1, wherein select contacts on  
2 the first surface of the connector are off-set from select  
3 contacts on the second surface of the connector.

1 3. The electronic device of claim 1, wherein the connector  
2 comprises a laminate material.

1 4. The electronic device of claim 3, wherein the laminate  
2 material comprises:

3 a core;  
4 a dielectric material surrounding the core; and  
5 a solder mask.

1 5. The electronic device of claim 4, wherein the laminate further  
2 includes a plated through hole.

1 6. The electronic device of claim 4, further including a  
2 connection layer between at least one contact on the first  
3 surface and at least one contact on the second surface.

1 7. The electronic device of claim 6, further including a ground  
2 shield over the connection layer.

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8. The electronic device of claim 4, wherein the core comprises a  
material selected from the group consisting of: copper-invar-  
copper, copper, stainless steel, nickel, iron and molybdenum.

9. The electronic device of claim 4, wherein the dielectric  
material comprises polyimide.

1 10. The electronic device of claim 1, wherein the contacts  
2 comprise ball grid array connections.

1 11. The electronic device of claim 1, wherein the first substrate  
2 comprises a chip package.

1 12. The electronic device of claim 1, wherein the second  
2 substrate comprises a printed circuit board.

1 13. The electronic device of claim 1, further comprising a  
2 stiffener frame attached to the connector.

1 14. The electronic device of claim 13, wherein the stiffener  
2 frame is adhesively attached to the connector.

1 15. The electronic device of claim 13, wherein the stiffener  
2 frame surrounds a perimeter of the connector.

1 16. The electronic device of claim 13, wherein the stiffener  
2 frame is removably attached to the connector.

1 17. The electronic device of claim 13, wherein the stiffener  
2 frame is attached to a surface of the connector.

1 18. The electronic device of claim 13, wherein the stiffener  
2 frame comprises a material selected from the group consisting of:  
3 plastic, metal and ceramic.

1 19. The electronic device of claim 13, wherein the stiffener  
2 frame comprises a heat sink.

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1 20. A connector system, comprising:  
2 a flexible substrate;  
3 a plurality of contacts formed on a first surface of the  
4 substrate; and  
5 a plurality of contacts formed on a second surface of the  
6 substrate, wherein select contacts on the first surface of the  
7 substrate are off-set from select contacts on the second surface  
8 of the substrate.

1 21. The connector system of claim 20, wherein the flexible  
2 substrate comprises a laminate material.

1 22. The connector system of claim 21, wherein the laminate  
2 material comprises:

3 a core;  
4 a dielectric material surrounding the core; and  
5 a solder mask.

1 23. The connector system of claim 22, wherein the laminate  
2 material further includes a plated through hole.

1 24. The connector system of claim 22, further including a  
2 connection layer between at least one contact on the first  
3 surface and at least one contact on the second surface.

1 25. The connector system of claim 22, further including a ground  
2 shield over the connection layer

1 26. The connector system of claim 22, wherein the core comprises  
2 a material selected from the group consisting of: copper-invar-  
3 copper, copper, stainless steel, nickel, iron and molybdenum.


1 27. The connector system of claim 22, wherein the dielectric  
2 material comprises polyimide

1 28. The connector system of claim of 20, wherein the contacts  
2 comprise ball grid array connections.

1 29. The connector system of claim 20, further including a  
2 stiffener frame.

1 30. The connector system of claim 29, wherein the stiffener frame  
2 is removably attached to the flexible substrate.

1 31. A method of forming an electronic device, comprising:  
2 providing a flexible connector having a plurality of  
3 contacts on a first surface and a plurality of contacts on a  
4 second surface; and  
5 attaching the flexible connector between a first substrate  
6 and a second substrate via the contacts.

 32. The method of claim 31, wherein the flexible connector  
2 comprises a laminate material.

1 33. The method of claim 31, wherein the contacts comprises ball  
2 grid array connections.

1 34. The method of claim 31, wherein select contacts on the first  
2 surface of the flexible connector are off-set from select  
3 contacts on the second surface of the flexible connector.

1 35. The method of claim 31, wherein the first substrate comprises  
2 a chip package.

1 36. The method of claim 31, wherein the second substrate  
2 comprises a printed circuit board.

1 37. A method of forming an electronic device, comprising:  
2 providing a first substrate;  
3 providing a second substrate;  
4 providing a flexible connector having a plurality of  
5 contacts on a first surface of the connector and a plurality of  
6 contacts on a second surface of the connector, wherein select  
7 contacts on the first and second surface of the connector are  
8 off-set; and

9 attaching the contacts on the first surface of the connector  
10 to the first substrate and the contacts on the second surface of  
11 the connector to the second substrate.

12 38. The method of claim 37, wherein the first substrate comprises  
13 a chip package.

14 39. The method of claim 37, wherein the second substrate  
15 comprises a printed circuit board.

16 40. The method of claim 37, wherein the flexible connector  
17 comprises a laminate material.

18 41. The method of claim 37, wherein the contacts comprise ball  
19 grid array connections.